



US006305143B1

(12) **United States Patent**
Streets et al.

(10) **Patent No.:** **US 6,305,143 B1**
(45) **Date of Patent:** **Oct. 23, 2001**

(54) **COMPOSITE ROOF STRUCTURES
PREPARED USING ONE-PART MOISTURE
CURING POLYURETHANE FOAMING
ADHESIVE COMPOSITIONS CONTAINING A
REVERSIBLY BLOCKED CATALYST**

5,391,246 * 2/1995 Stephens 52/746.11 X
6,044,604 * 4/2000 Clayton et al. 52/309.9

FOREIGN PATENT DOCUMENTS

2242435 * 10/1991 (GB) .
82/01684 * 5/1982 (WO) .
00/37534 * 6/2000 (WO) .

* cited by examiner

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(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

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(57) **ABSTRACT**

The present invention relates to composite roof structures and their preparation. The composite roof structure is prepared by applying a one-part, moisture curable, foaming, polyurethane adhesive composition to the roof deck, placing the roofing material in contact with the adhesive composition, and allowing the adhesive mixture to foam, fill, and cure. If multiple layer of the roofing material are used to form the composite roof structure, then the above procedure may be used to adhere each of the roofing material layers.

(21) **Appl. No.:** **09/344,462**

(22) **Filed:** **Jun. 25, 1999**

(51) **Int. Cl.⁷** **E04B 1/00**

(52) **U.S. Cl.** **52/746.11**

(58) **Field of Search** 52/309.5, 309.9,
52/408, 411, 746.11, 745.06; 156/71, 280;
428/317.1, 317.7, 319.1

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,368,665 * 11/1994 Koyama et al. 52/746.11 X

6 Claims, No Drawings